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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,597	07/17/2003	Seiji Hachisuka	1720.1003	9291

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EXAMINER	
ZHU, JOHN X	

ART UNIT	PAPER NUMBER
2858	

MAIL DATE	DELIVERY MODE
02/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/620,597	HACHISUKA ET AL.	
	Examiner	Art Unit	
	JOHN ZHU	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,11,27,30 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,11,27,30 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/18/2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 11, 27, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holmquest (5,619,105) in view of Dames et al. (6,414,475 B1).

With respect to claims 1, 11,27, 30 and 31 Holmquest discloses a current detection method of an inverter (Fig. 1) that converts DC input (output of rectifier) into AC output (column 3, lines 10-14) and supplies the AC output to a load (load transformer, ballast circuit) (column 2, lines 59-63, column 3, lines 18-20) comprising: allowing a magnetic flux change occurring to a circuit/circuit current (inherent to flux change in transformer T5 due a change in circuit current) to act on a detecting conductor (the conductor passing through toroid T5 core shown as LAMP LEADS in Fig.

2) and detecting the change in the current through the medium of the magnetic flux change (magnetically detecting) (column 3, line 41) by the detecting conductor. Holmquest further discloses that as an alternative to the toroid T5 discharge (arc) detection could be accomplished by a detection conductor (additional winding) closed coupled to circuit wiring (the ballast output winding) (columns 3, lines 37-39,52-55). Detection of circuit current due to discharge has been broadly interpreted as the detection of arcing current disclosed by Holmquest.

Holmquest also discloses detecting of the change in the circuit current whether or not anomaly exists in a current route including the load. Whether or not anomaly exists in a current route including the load is broadly interpreted as the arc detection disclosed by Holmquest by magnetically detecting arcing current in a current route including load (load transformer and ballast circuit) (column 3, lines 40-42,52-55).

Holmquest does not explicitly disclose the detecting conductor and the circuit wiring being printed on a circuit board.

Dames discloses a current sensor (Fig. 4, element 1) wherein the detecting conductor (current sense coil 4) is on the same PCB as the circuit wiring (lines 2 and 32).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sensor system of Holmquest to have both the detecting line and circuit wiring on a PCB for the purpose of providing a low cost manufacturing method that can achieve excellent tolerances and good reproducibility (Column 2, lines 15-17).

Response to Arguments

4. Applicant's arguments with respect to claims 1, 11, 27, 30 and 31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stauth et al. (6,781,359 B2) discloses that in conventional current sensors, the current-carrying conductor and the sensors are both on a printed circuit board (Column 1, lines 20-34).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN ZHU whose telephone number is (571)272-5920. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Zhu/

Examiner, Art Unit 2858

/ANDREW H HIRSHFELD/

Supervisory Patent Examiner, Art Unit 2858